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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,107

05/03/2006

Motonori Yamamoto

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06/17/2009

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WASHINGTON, DC 20006

EXAMINER

FANG, SHANE

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

06/17/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,107	Applicant(s) YAMAMOTO ET AL.	
	Examiner SHANE FANG	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

None of X references listed on ISP is anticipatory.

Response to Amendment

1. The 103 rejection of claims 1-7, 9-20 over Warzelhan et al. (US Patent No. 6,018,004) in view of Hager et al. (US Patent No. 5,373,058) has been overcome by the amendment of claim 1.

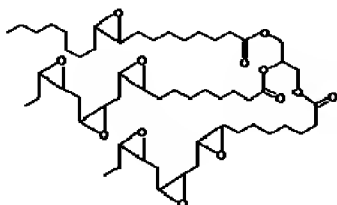
Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1-7 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (2003/0092793) in view of Warzelhan et al. (US 6,018,004) listed on IDS

As to Claims 1-5 and 9-15, Liu et al. discloses a biodegradable resin composition for producing agricultural films ([0046]) comprising (by calculation) 20-64% of thermoplastic resin such as polyester ([0070]), 36-80% of starch, and 0.6-12% of degradation promoter such as epoxidized soybean oil ([0070]) with more than two epoxide groups having the following structure (claim 1):



Liu et al. is silent on using the polyester as recited in claim 1-5 and 9-15, particularly in claim 2.

Warzelhan et al. discloses biodegradable polyester as recited in claim 2 contains A) acid component comprising 20-95 mol% of adipic acid, 5-80 mol% terephthalic acid, 0-5 mol% of sulfonated compound; B) C2-C6-alkanediol; C) $\text{HO}-(\text{C}(\text{O})-\text{G}-\text{O})_p-\text{H}$, wherein $p=1-1500$, $\text{G}=\text{CH}_2-$ (5:1-40). Warzelhan et al. further discloses the advantage of biodegradable polyester such as favorable raw material availability, satisfactory degradation by microorganisms especially in compost and soil, and balanced mechanical properties and biodegradability (11:51-68, 12:1-2).

Therefore, as to Claims 1-5 and 9-15, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the biodegradable resin composition disclosed by Liu et al. and replaced the polyester with the one disclosed by Warzelhan et al, because the resultant resin mixture would have advantage of improved biodegradation especially in compost and soil and balanced mechanical properties and biodegradability.

As to claims 6 and 16-19, Liu et al. discloses one-step mixing of polyester, starch, and epoxidized soybean oil (claim 1, [0070]) in absence of free radical initiator.

As to claims 7 and 20, Liu et al. is silent on the sequence of mixing polyester, starch, and epoxidized soybean oil. However, selection of any order of mixing ingredients is prima facie obvious. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930). In this particular case, the application fails to disclose benchmark of one-step mixing vs. selective sequential mixing as recited in claims 7 and 20. All examples in

Table 1-3 of instant application shows the selective sequential mixing using maleic anhydride as component iii instead of the claimed compound having more than epoxy groups. No examples of one-step mixing are disclosed.

Response to Arguments

Applicant's arguments filed on May 4, 2009 have been fully considered but they are not fully persuasive. With respect to the rejection under 35 U.S.C. 103 (a) for obviousness, the rejection of the remaining claims is maintained for the reasons of record as set forth in the previous actions.

Nevertheless, the 103 rejection of claims 1-7, 9-20 over Warzelhan et al. (US Patent No. 6,018,004) in view of Hager et al. (US Patent No. 5,373,058) has been overcome by the amendment of claim 1, resulting in the change of the scope of claimed invention.

The applicant's representative has argued Hager et al. fails to disclose biodegradable polyester and starch that does not allegedly cure the deficiencies of Warzelhan et al. and none of the references describe the benefits achieved with the claimed biodegradable polymer (Pg. 9 ¶ 1-2). The examiner disagrees. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See **In re Keller**, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

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See MPEP § 706.02(j). In this particular case, combining glycidyl acrylate disclosed by Hager (improves polyester reactivity), with the biodegradable polyester disclosed by Warzelhan et. al. would inherently result in a biodegradable composition. It is obvious to one of ordinary skill in the art that the biodegradability of a blend would be retained by the biodegradable polyester component with the highest biodegradability portion (the weakest link). The applicant shows no indication of weakened biodegradability after glycidyl acrylate is added to polyester and starch.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHANE FANG whose telephone number is (571)270-7378. The examiner can normally be reached on Mon.-Thurs. 8 a.m. to 6:30 p.m. EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sf

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796